



# Ph.D Position in Aggregation and Linkage of Evidential Values and Big Data Analytics

## About the position

We have a vacancy for PhD/Early Stage Researcher (ESR9) at Department of Information Security and Communication Technology

The position is based at the [Norwegian Information Security Laboratory](#) (NISlab) and is also affiliated with the [Center for Cyber and Information Security](#) (CCIS).

The Ph.D./Early Stage Researcher (ESR) position is funded by the EU Research and Innovation programme [Horizon 2020](#), under a grant by Marie Skłodowska-Curie Actions Innovative Training Networks (MSCA-ITN). The period of employment for the position is 3 years.

The position reports to department leader.

## Job description

The position is described below. The position description is also available on the project website <http://www.essentialresearch.eu/>.

Research project: Aggregation and linkage of evidential values.

Host institution: Norwegian University of Science and Technology (NTNU), Norway.

Objectives: Evidence derived from computing and network infrastructures using digital forensics techniques is playing an increasingly important role, e.g. in corporate compliance activities, criminal investigations, counter terrorism and intelligence operations. Investigators and intelligence analysts demand the possibility to enrich the collected evidence with information from open sources, e.g. data available on the Internet. The objective of the research is to establish an evidence value and quality-assessment framework that allows the linkage and aggregation of digital evidence in a closed and in an open ecosystem. This position has strong links to data fusion and Big Data/Machine-learning analytics.

Expected outcomes: The research will produce (i) quantified and measurable indicators for social-technical ecosystems (context), (ii) quantified and measurable indicators for quality of evidence (artefact), (iii) statistical framework and methods to establish the evidential value of an artefact/abnormality given a certain context, (iv) evidence analysis, aggregation and decision making by means of proof-of-concept. The ESR will be required to publish two peer-reviewed articles, participate and present in one workshop, write two research reports, produce 1 software demonstrator and a final dissertation.

Main supervisor: Prof. dr. Katrin Franke (NTNU).

Co-supervisor: Prof. dr. Craig Valli, Edith Cowan University - Security Research Institute (ECU), Australia.

Planned secondments:

Host 1: Edith Cowan University - Security Research Institute (Australia).

Host 2: Consiglio Nazionale Delle Ricerche (CNR), Italy.

Host 3: Netherlands Forensic Institute (NFI), Netherlands.

## Qualification requirements

The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background in Computer Science/Information Technology/Digital Forensics, Law/Law Enforcement, Intelligence Studies or equivalent education with a grade of B or better in terms of [NTNU's grading scale](#). Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and [national guidelines for appointment as PhD, postdoctor and research assistant](#).

All successful candidates must be able to secure a residence and work permit in Norway.

### Eligibility criteria:

Eligibility for admission will be determined by considering the combination of the candidate's academic qualifications and relevant professional experience according to the bullets below.

### First degree/Bachelor degree:

- Computer Science/ Information Technology/ Digital forensics
- Law
- Law Enforcement/Intelligence Studies

### Second degree/Master degree/or equivalent

- Law
- Computer Science/ Information Technology/ Digital Forensics

Candidates who have completed their Master degree in an institution where English is not the language of instruction must present one of the following Secure English Language Test (SELT) results as follows:

- TOEFL Internet-Based (iBT) - minimum 95 with a writing score of at least 24
- Academic IELTS - minimum 6.5 with a minimum of 6.0 in each element
- Advanced Cambridge Certificate at grade C or better.
- The test results must not be older than 24 months on the date of the application deadline.

### Selection criteria:

- Quality of the candidate assessed through the candidate's academic merit and relevant professional experience.
- Candidates with a proven track record in the fields of evidence law, digital forensics, or computer science/IT will be given preference.
- It would be an advantage if the candidate has had work experience in the fields of digital forensics, criminal investigation, automated data processing, pattern matching, data aggregation.
- The candidate should also possess a sound working knowledge of quantitative & qualitative research methods, experimental design, statistical methods and mastery of relevant statistical software.

### Please note there are strict eligibility requirements that apply to all Marie Skłodowska-Curie Researchers:

- The candidate must not have resided or carried out his/her main activity (work, studies, etc.) in Norway for more than 12 months in the 3 years immediately prior to his/her recruitment under the project (short stays such as holidays are not counted).
- At the time of recruitment, the candidate must not have been awarded a doctorate degree and must be in the first 4 years of her/his research career.
- The candidate must work exclusively for the project during the employment contract.
- The candidate must fulfil the conditions to be admitted in the PhD programme indicated in the Job Vacancy.

Researchers can be of any nationality. They are required to undertake transnational mobility (i.e. move from one country to another) when taking up their appointment. Nationality is therefore not a criterion. Rather the location of the researcher's residence or main activity during the 3 years prior to their recruitment is determining.

## Personal characteristics

- Excellent oral and written communication skills and an ability to communicate effectively across different stakeholder groups.
- Flexibility and ability to take direction and accommodate feedback from diverse stakeholders.
- Ability to work both individually and in a (virtual) team environment
- Leadership skills.
- Ability to meet deadlines and produce work of a consistently high standard

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement

## We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and [inclusive work environment](#) with dedicated colleagues
- favourable terms in the [Norwegian Public Service Pension Fund](#)
- [employee benefits](#)

## Salary and conditions

In accordance with Marie Skłodowska-Curie actions (MSCA), the salary will consist of EUR 46,169,20 per year. Mobility Allowance is EUR 7,200 per year per researcher. Family Allowance (where applicable at the time of recruitment) is EUR 6,000 per year per researcher. All amounts stated are before taxation.

For further information on [Marie Skłodowska-Curie schemes and eligibility](#)

Appointment takes place on the terms that apply to State employees at any time, and after the appointment you must assume that there may be changes in the area of work.

## General information

### [Working at NTNU](#)

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (Offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

Questions about the position can be directed to Professor Katrin Franke, e-mail [katrin.franke@ntnu.no](mailto:katrin.franke@ntnu.no).

About the application:

Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

Please submit your application electronically via [jobbnorge.no](http://jobbnorge.no) with your CV, diplomas and certificates. Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number 2018/40936 - ESR9 when applying.

**Application deadline: 02.01.2019**

## **NTNU - knowledge for a better world**

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Research is vital to the security of our society. We teach and conduct research in cyber security, information security, communications networks and networked services.

**The Department of Information Security and Communication Technology** is one of seven departments in the Faculty of Information Technology and Electrical Engineering .

Our areas of expertise include biometrics, cyber defence, cryptography, digital forensics, security in e-health and welfare technology, intelligent transportation systems and malware.

Jobbnorge-ID: 160102, Søknadsfrist: Søknadsfristen er gått ut